Joslin Vision Network (JVN) Project: Diabetes Center, Department of Defense & Department of Veterans Affairs Telemedicine Initiative.

Background

The Diabetes "Detection" and "Care and Treatment" Project is a unique collaboration among the Joslin Diabetes Center (JDC), the Department of Veterans Affairs (VA), and the Department of Defense (DoD). The Joslin Vision Network (JVN) telemedicine initiative provides a technology platform for facilitating diabetes diagnosis, management (including diabetic retinopathy) and treatment. The initiative is designed to access all patients with diabetes into a cost-effective quality eye care program crossing cultural and geographic boundaries. This program incorporates two components:

- Joslin Vision Network (JVN): Remote access of patients with diabetes into an annual eye examination program, with diagnosis of diabetic retinopathy levels at centralized subspecialty centers using JVN enabling telemedicine technology.
- Storage and retrieval capabilities for outcome and population based studies using the JVN.

Currently the Joslin Diabetes Center has partnered with Primix and Agafa to create JVN2. This new version of JVN system is even easer to use for the imager take images of the retina and have made great improvements for the certified readers of the system. JVN2 is build around a SQL database and uses the DICOM standard to send images between the acquisition workstation and the server.
In this new phase of the JVN project Tripler Army Medical Center (TAMC) and the Honolulu VA will be upgraded to the JVN2 system. The JVN2 system will also be deployed in two remote VA clinics in Hawaii. The first site will be the VA clinic located on Hilo and the 2nd site will be the VA clinic located on Maui.

Organization

COL Weldon Dunlap, M.D. - Principal Investigator
Dr. Jon Sakuda, O.D. – Principal Investigator
Deborah P. Birkmire-Peters, Ph.D. - Principal Investigator
Kari-Jo Coll, R.N. - JVN Coordinator
Glenn Kim - Project Manager

Mission Statement

To validate and demonstrate the Joslin technology/methodology in VA/DoD primary care settings and establish whether, when compared to current implementation of care, it will improve one or more of the following:

- access to eye care
- detection and treatment of diabetic retinopathy
- cost/efficiency
- patient/provider satisfaction

Goals and Objectives

- Goals
  - JVN: To validate the Joslin technology using a low light level camera for acquisition of retinal images for the evaluation of diabetic retinopathy and to determine if patient access is improved with use of this technology.

- Objectives
  - JVN: To accomplish the universal prevention of vision loss from diabetic retinopathy by 2020 without regard to geographic or cultural boundaries.

Current Status

- Significant Accomplishments

Joslin Vision Network Version 1

- JVN coordinator trained and given provisional status as an image reader.
- "Assessment of Diabetic Retinopathy Using Non-Mydriatic Retinal Fundus Imaging: A Joint Joslin Diabetes Center and Tripler Army Medical Center Telemedicine Initiative": 60 patients imaged for this study, with 30 receiving the required dilated eye exam.
- Protocol entitled "Real-Time Assessment of Diabetic Retinopathy Using Non-Mydriatic Retinal Fundus Imaging: A Joint Joslin Diabetes Center, Veterans' Health Administration and Tripler Army Medical Center Telemedicine Initiative" approved by the VA IRB and initiated.
  - Fourteen patients imaged for the study, with 6 Real-Time readings completed at the time of imaging. Twenty patients are required for the study.
- Imaged a total of 53 patients enrolled in the Diabetes Outpatient Intensive Treatment (DOIT) Program. Clinical readings performed by Joslin Diabetes Center. Patients provided with diagnosis and treatment/management plan as generated by the Joslin Electronic Medical Record System (EMRS). The last 11 have been included in the clinical study.
- Image review workstations placed in ophthalmologists' offices to integrate as part of clinic practice.

- Project Timelines
  - VA Real-Time Study Protocol approved - March 2000.
  - Ophthalmologists certified as readers - May 2000.
  - Comparison Study Images read at Tripler – May to September 2000.
  - Begin Real-Time consultations between Honolulu VA and TAMC - July to Dec 2000.
  - Complete Comparison Study - October 2000.
  - Begin Patient Access Study – July 2000 – September 2001.
  - Install JVN2 System in September 2001
  - Install JVN2 VA remote sites in September 2001

Strategic Direction

- Accomplishment of Objectives - Field-testing and clinical trials will be accomplished in-house.
- Impact on customers- Our customers are remote patients and providers of health care. Success means improved patient care, better patient outcomes, and reduced cost.

Business Associations

Corporate partnerships - N/A
University Partnerships - Joslin Diabetes Center/Harvard Medical School
Government Partnerships -

- US Army Research Laboratory
- Honolulu VA
- New England VA
- TAMC IMD - network assistance, software assistance, hardware assistance

Project Security

System security: N/A at this time
Standards compliance measures: uses open architecture, will interface with existing systems and can be incorporated into a "firewall".

Summary

Diabetes mellitus (DM) is a major public health concern associated with significant neurological, cardiovascular, ocular and renal complications. More than 7 million individuals have DM but are unaware of their disease. Furthermore, despite demonstrated means to reduce the risk of vision loss from diabetes, DM remains a major cause of blindness. The Diabetes "Detection" and "Care and Treatment" Project is a unique collaboration among the Joslin Diabetes Center (JDC), the Department of Veterans Affairs (VA), and the Department of Defense (DoD). The

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